

May 2022 ~ Resource #380501

Improving Heart Failure Care

The toolbox below contains strategies, tips, and resources to help you care for your heart failure (HF) patients and prevent hospital readmissions.

Information may differ from product labeling. Canadian HF guideline recommendations included if significantly different from US.

Goal	Suggested Strategies or Resources
Review the principles of heart failure management.	<ul style="list-style-type: none"> • See our charts, <i>Heart Failure Treatment at a Glance</i> and <i>Acute Heart Failure: FAQs</i>. • HF treatment includes meds, education to facilitate self-care, avoidance of excess sodium, and exercise (i.e., regular physical activity or cardiac rehab).¹ • HF is further divided into the following categories: <ul style="list-style-type: none"> ○ HFrEF: EF \leq40% or “HF with reduced ejection fraction” (previously called “systolic HF”).¹ ○ HFpEF: EF \geq50% or “HF with preserved ejection fraction” (previously called “diastolic HF”).¹ ○ HFmEF: EF 41% to 49% or “HF with mildly reduced ejection fraction”.¹ (Canada: “mid-range ejection fraction”¹⁷)
Get patients with reduced ejection fraction (HFrEF) on the right meds at the right dose.	<ul style="list-style-type: none"> • Use evidence-based meds to reduce morbidity and mortality in patients with HFrEF.¹ First-line agents include: <ul style="list-style-type: none"> ○ Entresto (sacubitril/valsartan) (For newly diagnosed patients, or alternative for patients already on an ACEI or ARB).¹ ○ ACEI or ARB (As an alternative to sacubitril/valsartan, at an evidence-based dose [e.g., lisinopril 20 mg once daily]).¹ ○ Beta-blocker (Bisoprolol, metoprolol succinate [not tartrate], or carvedilol at an evidence-based dose [e.g., metoprolol succinate 200 mg once daily]).¹ ○ Aldosterone antagonist (eplerenone or spironolactone)¹ ○ SGLT2 inhibitor (e.g., canagliflozin, dapagliflozin, empagliflozin).¹ Use our chart, <i>Diabetes Medications and Cardiovascular Impact</i>, to learn how an SGLT2 inhibitor could benefit your patient. ○ Diuretic as needed for fluid retention.¹ See our charts, <i>Loop Diuretic Use in Heart Failure</i> and <i>Comparison of Commonly Used Diuretics</i>. • Consider additional agents when first-line agents can't be used or are not enough: <ul style="list-style-type: none"> ○ Hydralazine plus isosorbide dinitrate (Adherence is poor and has not been shown to reduce mortality in non-Blacks.^{18,19}) ○ Ivabradine (<i>Corlanor</i> [U.S.], <i>Lancora</i> [Canada]) (For use with maximally tolerated beta-blocker dose, or for patients who cannot use a beta-blocker.^{15,16} Reduces hospitalization, not mortality.¹¹) ○ Digoxin (Last line. Decreases hospitalization.¹) ○ Vericiguat (<i>Verquvo</i>) (US) (Last line. For patients with recent hospitalization or outpatient parenteral diuretic use.¹⁰) • Ensure patients are on evidence-based doses. See our chart, <i>Target Doses of Meds for Heart Failure</i>. • For information on all these medications and their place in therapy for HFrEF, see our chart, <i>Heart Failure Treatment at a Glance</i>.

Goal	Suggested Strategies or Resources
<p>What are some tips for safely optimizing HFrEF meds in patients with reduced kidney function?</p>	<ul style="list-style-type: none">• Tips for initiating and titrating therapy. Also see “Safety Flags,” below.<ul style="list-style-type: none">○ eGFR 30 to 60 mL/min/1.73m²: start with a low-dose beta-blocker, SGLT2 inhibitor, and low-dose ARNI (or ACEI or ARB).<ul style="list-style-type: none">• After one to two weeks, if SBP >100 mm Hg, eGFR >30 mL/min/1.73m², and potassium <5 mEq (mmol)/L, try adding an aldosterone antagonist.²⁰• After one to two more weeks, if there is no symptomatic hypotension, start to uptitrate the beta-blocker (if heart rate >60/min) and/or ARNI (or ACEI or ARB) (if serum creatinine has increased <50% [and is ≤2.5 mg/dL (221 umol/L)] and potassium is <5.5 mEq [mmol]/L).^{14,20}○ eGFR 15 to 30 mL/min/1.73 m²: start with a low-dose beta-blocker, empagliflozin (if eGFR >20 mL/min/1.73 m²)*, and low-dose ACEI.<ul style="list-style-type: none">• After two to three weeks, if there is no symptomatic hypotension, start to uptitrate the beta-blocker (if heart rate >60/min) and/or ACEI (if serum creatinine has increased <50% [and is ≤2.5 mg/dL (221 umol/L)] and potassium is <5.5 mEq [mmol]/L).^{14,20}○ eGFR <15 mL/min/1.73m²: start with low-dose beta-blocker, low-dose ACEI, and hydralazine/isosorbide dinitrate if tolerated.<ul style="list-style-type: none">• After two to three weeks, if there is no symptomatic hypotension, start to uptitrate the beta-blocker (if heart rate >60/min) and/or ACEI (if serum creatinine has increased <50% [and is ≤2.5 mg/dL (221 umol/L)] and potassium is <5.5 mEq (mmol)/L).^{14,20}• Safety Flags:<ul style="list-style-type: none">○ Patients being started/uptitrated on ARNI (or ARB or ACEI): If serum creatinine increases to 1.5-2x baseline (but is ≤3.5 mg/dL [309.4 umol/L]), and potassium remains ≤5.5 mEq (mmol)/L, and eGFR remains ≥20 mL/min/1.73m², consider cutting the dose in half.²⁰ If serum creatinine has more than doubled or is >3.5 mg/dL (309.4 umol/L), eGFR has fallen to <20 mL/min/1.73m², or potassium has increased to >5.5 mEq (mmol)/L, consider stopping ARNI (or ACEI or ARB).²⁰ Can rechallenge or increase dose in two to four weeks.²⁰○ Patients being started/uptitrated on aldosterone antagonist: If serum creatinine increases to 1.5-2x baseline (but is ≤3.5 mg/dL [309.4 umol/L]), and potassium remains ≤5.5 mEq (mmol)/L, and eGFR remains ≥20 mL/min/1.73m², consider cutting the aldosterone antagonist dose in half.²⁰ If serum creatinine has more than doubled or rises to >3.5 mg/dL (309.4 umol/L), or eGFR has fallen to <20 mL/min/1.73m², or potassium has increased to >6 mEq (mmol)/L, consider stopping the aldosterone antagonist.²⁰ Can rechallenge or increase dose in two to four weeks.²⁰ <p>*Canada: Do not start SGLT2 inhibitor if eGFR <25 mL/min/1.73m².²¹</p>

Goal	Suggested Strategies or Resources
Treat symptoms and comorbidities in heart failure patients with preserved ejection fraction (HFpEF) .	<ul style="list-style-type: none"> ● HFpEF is treated with cautious diuresis plus management of comorbidities (e.g., hypertension, A Fib, CAD, valvular heart disease, amyloidosis).^{1,13} <ul style="list-style-type: none"> ○ For treatment of hypertension, consider a RAAS antagonists (below), or a beta-blocker for patients with a history of MI, CAD, or A Fib, if exercise tolerance allows.¹ ● To decrease heart failure-related hospitalizations, consider adding:¹ <ul style="list-style-type: none"> ○ Empagliflozin (<i>Jardiance</i>) in patients with or without diabetes with class II, III, or IV HFpEF (EF>40%), elevated BNP, and eGFR ≥ 20 mL/min/1.73m² [Evidence Level A-1].⁹ See our chart, <i>Diabetes Medications and Cardiovascular Impact</i>, for details. (Canada: Do not start SGLT2 inhibitor if eGFR <25 mL/min/1.73m².²¹) ○ Spirolactone in select patients: EF $\geq 45\%$, elevated BNP or HF admission within one year, serum creatinine <2.5 mg/dL (221 umol/L), potassium <5 mEq (mmol)/L, and eGFR ≥ 30 mL/min/1.73 m² [Evidence level B-1].⁸ ○ Sacubitril/valsartan (<i>Entresto</i>) in select patients: EF $\geq 45\%$, elevated BNP, HF admission within nine months, potassium ≤ 5.2 mEq (mmol)/L, eGFR ≥ 30 mL/min/1.73 m² [Evidence Level B-1].¹² ○ ARB¹ (do not combine with sacubitril/valsartan)¹
Avoid meds that may worsen heart failure.	<ul style="list-style-type: none"> ● Avoid NSAIDs, diltiazem, alogliptin, saxagliptin, pioglitazone, verapamil, nifedipine, sotalol, and dronedarone.¹ ● For more, see our charts, <i>Medications and Supplements with Adverse Effects in Heart Failure</i> and <i>Diabetes Medications and Cardiovascular Impact</i>.
Screen for medication-related problems.	<ul style="list-style-type: none"> ● Review the med list at transitions of care¹ and other points of contact. Get our <i>Worksheet for Med Review</i> to use as a guide to help you prevent, identify, and resolve med-related problems, such as unnecessary meds, ineffective therapy, need for additional med, side effects, and nonadherence. ● Communicate with appropriate colleagues (e.g., prescriber, pharmacist) when problems are identified. ● Providing comprehensive med reviews yearly for eligible US patients on Medicare Part D and Advantage Plans improves Star ratings.⁴
Educate patients about heart failure and their heart failure meds.	<ul style="list-style-type: none"> ● Explain what each med does. ● Cover common side effects and what to do about them. ● For patient information on HF meds click on the “How is Heart Failure Treated” link on the Heart Failure Society of America’s “Heart Failure Facts & Information” page at https://hfsa.org/patient-hub/heart-failure-facts-information. ● Get the American Heart Association’s <i>What is Heart Failure?</i> for an overview and animation of HF at https://www.heart.org/en/health-topics/heart-failure/what-is-heart-failure#.W0ZGZfZFxPY. ● Get the University of Ottawa HF Institute’s <i>Heart Failure</i> guide at https://www.ottawaheart.ca/document/heart-failure-guide-patients-and-families.

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Use strategies to improve med adherence.	<ul style="list-style-type: none">• Medication adherence apps can be found in our chart, <i>Medication Adherence Apps</i>.• If med cost is a barrier to adherence, US subscribers can get help from our chart, <i>Guide for Helping Patients Afford their Medications</i>. It provides cost-saving tips and a list of programs and other helpful resources to recommend to patients.• Minimize the number of meds a patient must take. Use combination products when appropriate.• Use visual aids such as pill cards to show the med regimen. Go to http://www.ahrq.gov/patients-consumers/diagnosis-treatment/treatments/pillcard/index.html to find out how to create a pill card.• Suggest patients use pill boxes, alarms, and calendars.• Teach patients to relate pill-taking to daily activities such as morning coffee, meals, bedtime, etc.• Enlist help from family, friends, or community services.• Get our toolbox, <i>Medication Adherence Strategies</i>, for more practical tips and resources.• US pharmacists will be interested in our chart, <i>The Basics of Med Sync</i>. Med Sync can improve med adherence, which in turn can improve Medicare Part D Star Ratings (adherence to renin angiotensin system antagonists is a quality measure for Medicare Part D Star Ratings⁴).
Educate patients about diet, exercise, and other lifestyle changes.	<ul style="list-style-type: none">• Advise smoking cessation.¹³ Use our toolbox, <i>Smoking Cessation, Helping Patients Who Use Tobacco</i>.• Instruct on sodium restriction to reduce congestive symptoms.¹ Advise limiting processed foods, rinsing canned food to remove salt, buying fresh or “no added salt” food, and cutting back on frozen dinners.⁶ Discourage use of salt substitutes due to hyperkalemia risk. Rely on herbs and spices for flavors instead.⁶<ul style="list-style-type: none">○ Remind patients to look at serving sizes and the amount of sodium (salt) in the ingredients section on food labels.⁶ Patients may eat more than one serving at a time.• Encourage physical activity to improve functional status.¹ Consider cardiac rehab.¹• Get the American Heart Association’s <i>Lifestyle Changes for Heart Failure</i> for information on diet, physical activity, and more at http://www.heart.org/HEARTORG/Conditions/HeartFailure/PreventionTreatmentofHeartFailure/Lifestyle-Changes-for-Heart-Failure_UCM_306341_Article.jsp.• Get the American Heart Association’s <i>How to Reduce Sodium</i> at https://www.heart.org/en/healthy-living/healthy-eating/eat-smart/sodium/how-to-reduce-sodium.• Get the Ted Rogers Centre for Heart Research <i>Exercise and Heart Failure</i> at http://tedrogersheartfunction.ca/healthy-living/exercise-and-heart-failure/.
Motivate patients.	<ul style="list-style-type: none">• Use motivational interviewing to create change.• Patients can read <i>Heart Failure Personal Stories</i> on the American Heart Association’s website: https://www.heart.org/en/health-topics/heart-failure/heart-failure-personal-stories.

Goal	Suggested Strategies or Resources
Empower patients for self-care.	<ul style="list-style-type: none">• Ensure patients have a scale at home to monitor for fluid weight gain (e.g., weigh themselves daily).• Explain risks and benefits of meds. Use decision aids, which help patients reach a risk/benefit decision by answering treatment-specific questions, such as those available for ARNI from the Colorado Program for Patient Centered Decisions (https://patientdecisionaid.org/heart-failure-medication-arni/).• Get the American Heart Association’s <i>Healthier Living With Heart Failure: Managing Symptoms and Reducing Risk</i> free interactive workbook at http://ahaheartfailure.ksw-gtg.com/publication/?i=461880.• Give patients the American Heart Association’s “Discussion Guide” and “Questions to Ask Your Doctor” to help them make the most out of their appointments (https://www.heart.org/en/health-topics/heart-failure).• Direct patients to online education modules, podcasts, and webinars from the Heart Failure Society of America at https://hfsa.org/patient-hub/patient-tools.
Help patients identify when to seek care.	<ul style="list-style-type: none">• Get the American Heart Association’s <i>Physical Changes to Report</i> at https://www.heart.org/en/health-topics/heart-failure/living-with-heart-failure-and-managing-advanced-hf/physical-changes-to-report-for-heart-failure.• Help patients track symptoms using the American Heart Association’s Self-Check Plan detailing green, yellow, and red zones for action at https://www.heart.org/-/media/files/health-topics/heart-failure/hf-symptom-tracker.pdf (Available in Spanish at https://www.heart.org/-/media/files/health-topics/heart-failure/hf-symptoms-self-check-plan-spanish.pdf?la=en.)
Reduce hospital readmissions and emergency department visits.	<ul style="list-style-type: none">• One in four HF patients is readmitted within 30 days. Major causes are med nonadherence, poor understanding of the treatment plan or signs of exacerbation, and poor follow-up.³• Get the discharge summary. Call the discharging prescriber if it is unavailable or anything is unclear.<ul style="list-style-type: none">○ Identify labs pending at discharge that need follow-up.• Transitional care prevents one emergency department visit for every nine patients, and one readmission for every 52 HF patients.³ Consider combining interventions for the most benefit (e.g., telephone follow-up plus clinic visit).³• Our toolbox, <i>Reducing Hospital Readmissions</i>, provides other strategies and resources to help you keep “frequent fliers” grounded, with a focus on pharmacotherapy. It includes information on billing for transitional care management services.• Our <i>Transitions of Care Checklist</i> can be used at admission, at transfer between units, before discharge, and at the patient’s first post-admission outpatient visit to help keep patients on track with their meds and out of the hospital.

Goal	Suggested Strategies or Resources
Monitor for changes in heart failure status.	<ul style="list-style-type: none"> • Post hospital discharge, follow-up (telemedicine or in-person) within seven days to optimize care and reduce risk of readmission.¹ (Also see discussion of transitional care, above). • Individualize follow-up. Consider follow-up every three to four months for stable patients based on HF clinical trial design. Unstable patients or those being titrated on meds usually have more frequent visits.⁷ For example, see patients with recent HF hospitalization every one to four weeks.⁷ • Consider checking electrolytes and renal function: <ul style="list-style-type: none"> ○ within a week of discharge.⁵ ○ at each follow-up visit (e.g., every one to three months), particularly for patients with more advanced disease.⁷ ○ before increasing the dose of guideline-directed medications.¹ ○ ARNI, ACEI or ARBs: within one to two weeks of initiation or dosage increase,² or within three to five days if the last potassium was ~5 mEq (mmol)/L or higher.⁷ ○ Aldosterone antagonists: after starting or increasing the dose, check potassium and kidney function in ~1 week, at four weeks, then at least every six months.¹ ○ within five to seven days of starting or increasing the dose of a diuretic.⁷ ○ when otherwise clinically indicated (e.g., acute illness).⁷ • Monitor fluid status. Almost half of patients will require a diuretic dose increase during the first six weeks post-discharge.⁵ • Use the University of Michigan - College of Pharmacy's patient assessment questionnaire, <i>The One Minute Clinic (TOM-C): Community Intervention Program for Heart Failure</i> (developed by Barry E. Bleske, Pharm.D.). With this questionnaire, pharmacists can assess their patients for signs of worsening HF and the need to alert their prescriber.
Ensure vaccination against respiratory illness.	<ul style="list-style-type: none"> • Annual influenza vaccine. See our <i>Flu Vaccines</i> chart. (US subscribers) (Canadian subscribers) • Pneumonia vaccine. US subscribers can use our algorithm, <i>Pneumococcal Vaccination in Adults</i>, to select the recommended pneumococcal vaccine (including timing of doses) in patients who should be vaccinated. Canadian subscribers can use our chart, <i>Pneumococcal Vaccination in Adults: Who Gets What and When?</i> • COVID-19 Vaccine. See our resources, <i>COVID 19 Vaccines</i>, for which COVID-19 vaccine to give and appropriate timing. Our FAQ, <i>Communicating About COVID-19 Vaccination</i>, answers common questions you or your patients may have about COVID-19 vaccination and includes talking points to dispel misconceptions.
Learn about quality measures and get related resources.	<ul style="list-style-type: none"> • Learn how the American Heart Association's <i>Target: HF</i> program can help improve the quality of care and reduce readmission rates at https://www.heart.org/en/professional/quality-improvement/target-heart-failure. • The American Heart Association's <i>Get with the Guidelines – Heart Failure Clinical Tools Library</i> is available at https://www.heart.org/en/professional/quality-improvement/get-with-the-guidelines/get-with-the-guidelines-heart-failure/get-with-the-guidelines-hf-clinical-tools-library. • US pharmacists can get our toolbox, <i>Quality Measures for Pharmacies</i>.

Goal	Suggested Strategies or Resources
Use appropriate care management codes when billing.	<p>In the US:</p> <ul style="list-style-type: none">• Chronic care management (CCM) codes are divided into two categories: CCM and Complex CCM. Requirements for use of these codes can be found at https://www.cms.gov/outreach-and-education/medicare-learning-network-mln/mlnproducts/downloads/chroniccaremanagement.pdf.• Transitional care management information can be found at https://www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/MLNProducts/Downloads/Transitional-Care-Management-Services-Fact-Sheet-ICN908628.pdf.

Abbreviations: ACEI = angiotensin-converting enzyme inhibitor; A Fib = atrial fibrillation; ARB = angiotensin receptor blocker; ARNI=angiotensin receptor-neprilysin inhibitor; BNP = brain natriuretic peptide; BP = blood pressure; CAD = coronary artery disease; EF = ejection fraction; eGFR = estimated glomerular filtrate rate; HF = heart failure; MI = myocardial infarction; RAAS = renin-angiotensin-aldosterone system; SGLT2 = sodium glucose cotransporter 2

Users of this resource are cautioned to use their own professional judgment and consult any other necessary or appropriate sources prior to making clinical judgments based on the content of this document. Our editors have researched the information with input from experts, government agencies, and national organizations. Information and internet links in this article were current as of the date of publication.

Levels of Evidence

In accordance with our goal of providing Evidence-Based information, we are citing the **LEVEL OF EVIDENCE** for the clinical recommendations we publish.

Level	Definition	Study Quality
A	Good-quality patient-oriented evidence.*	<ol style="list-style-type: none"> 1. High-quality randomized controlled trial (RCT) 2. Systematic review (SR)/Meta-analysis of RCTs with consistent findings 3. All-or-none study
B	Inconsistent or limited-quality patient-oriented evidence.*	<ol style="list-style-type: none"> 1. Lower-quality RCT 2. SR/Meta-analysis with low-quality clinical trials or of studies with inconsistent findings 3. Cohort study 4. Case control study
C	Consensus; usual practice; expert opinion; disease-oriented evidence (e.g., physiologic or surrogate endpoints); case series for studies of diagnosis, treatment, prevention, or screening.	

***Outcomes that matter to patients** (e.g., morbidity, mortality, symptom improvement, quality of life).

[Adapted from Ebell MH, Siwek J, Weiss BD, et al. Strength of Recommendation Taxonomy (SORT): a patient-centered approach to grading evidence in the medical literature. *Am Fam Physician* 2004;69:548-56. <https://www.aafp.org/afp/2004/0201/p548.pdf>.]

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Cite this document as follows: Clinical Resource, Improving Heart Failure Care. Pharmacist's Letter/Prescriber's Letter. May 2022. [380501]

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